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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/780,832	02/18/2004	Benoit Brule	FR-AM1929 NP	3754

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ARKEMA INC.
PATENT DEPARTMENT - 26TH FLOOR
2000 MARKET STREET
PHILADELPHIA, PA 19103-3222

EXAMINER

WOODWARD, ANA LUCRECIA

ART UNIT	PAPER NUMBER
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1711

DATE MAILED: 03/09/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/780,832

Applicant(s)

BRULE, BENOIT

Examiner

Ana L. Woodward

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE three MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on February 21, 2006
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1 and 3-10 is/are pending in the application.
- 4a) Of the above claim(s) 7-9 is/are withdrawn from consideration.
- 5) ☐ Claim(s) 1, 3-6 and 10 is/are allowed.
- 6) ☒ Claim(s) 1, 3-6 and 10 is/are rejected.
- 7) ☐ Claim(s) 1, 3-6 and 10 is/are objected to.
- 8) ☐ Claim(s) 1, 3-6 and 10 are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. .
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

DETAILED ACTION

Election/Restrictions

1. Claims 7-9 are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected group, there being no allowable generic or linking claim. Applicant timely traversed the restriction (election) requirement in the reply filed on June 14, 2005.

Claim Rejections - 35 USC § 112

2. Claims 1, 3-6 and 10 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The specification, as originally filed, fails to provide express support for the “90 percent by weight” and “10 percent by weight” contents defining the polyamide and polyolefin components, respectively. Accordingly, since no support can be found for said contents, such are deemed new matter.

3. Claim 10 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claim 10, it is unclear as to whether or not components i) and ii) are both required.

In claim 10, the metes and bounds of the “elastomer” are indeterminate in scope.

In claim 10, it is unclear as to what is meant by “cografted”.

Claim Rejections - 35 USC § 102/103

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 1 and 3-6 are rejected under 35 U.S.C. 102(e) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over U.S. 6,608,133 (Kurasawa et al).

Kurasawa et al disclose thermoplastic resin compositions and articles therefrom comprising a thermoplastic resin and hollow carbon fibrils dispersed therein. Specific examples of thermoplastic resins include polyamides, reading on the presently claimed polyamide, as well as polyolefins and aromatic vinyl compound polymers, reading on the presently claimed polyolefin, (column 2, lines 25-27). It is within the scope of the reference to use mixtures of two or more thermoplastic resins (column 6, lines 51-52). The hollow carbon fibrils used in the examples are the Graphite Fibrils BN produced by Hyperion Catalysis International, Inc. having an outer diameter of 10 nm and a length of 5,000 nm (column 14, lines 65-67), reading on the presently claimed carbon nanotubes. In this regard, it is noted that the presently claimed carbon

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nanotubes are manufactured by Hyperion Catalysis International (specification page 23) and have a diameter of about 5 to 20 nm and a length of 100 to 1,000.

In Tables 5 and 6, patentees disclose compositions comprising SEBS, reading on the presently claimed polyolefin, polyamide 6, reading on the presently claimed polyamide, carbon fibrils, reading on the presently claimed carbon nanotubes, as well as additional components not precluded from the presently claimed composition. The disclosure of the reference meets the requirements of the present claims both with respect to the types of materials used and their contents.

The presently claimed “polyolefin”, given its broadest reasonable interpretation, reads on any polymer derived from olefinically unsaturated monomers, such as the styrene-based polymers defining patentees’ aromatic vinyl compound polymers and exemplified SEBS (column 5, lines 8-30). In fact, applicants themselves describe these same materials as suitable polyolefins (page 10, lines 8-12).

7. Claims 1 and 3-6 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over U.S. 6,090,459 (Jadamus et al) in view of U.S. 5,376,712 (Nakajima).

Jadamus et al disclose a multilayer plastic composition comprising an inner layer which comprises an electrically conductive thermoplastic molding composition and graphite fibrils, wherein the graphite fibrils have an average diameter on the order of 0.01 μm and a length/diameter ratio on the order of from 500:1 to 1,000:1. The hollow carbon fibrils used in the examples are the Graphite Fibrils BN produced by Hyperion Catalysis International, Inc., reading on the presently claimed carbon nanotubes. In this regard, it is noted that the carbon

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nanotubes used in the present invention are similarly manufactured by Hyperion Catalysis International (specification page 23) and have a diameter of about 5 to 20 nm and a length of 100 to 1,000. Molding compositions suitable as inner layers include impact-modified polyamides. Suitable impact modifiers include olefin (co)polymers and styrene-based copolymers, e.g., block copolymers of alkenylaromatic compounds with dienes, etc., all of which read on the presently claimed polyolefin component (column 3, lines 9-22).

In Table 1, Jadamus et al describe various compositions comprising an impact-modified polyamide (VESTAMID X 7293 and X 7297), reading on the presently claimed polyamide/polyolefin blend, and graphite fibrils, reading on the presently claimed carbon nanotubes. Although, the type of impact modifier and content thereof in the VESTAMID products are not specified, it is reasonably believed that the impact modifier would be one of the types disclosed by patentees (column 3, lines 9-22), all of which read on the polyolefin component of the present claims. As to the amount, it is known from Nakajima that impact modified polyamides customarily employ from about 5 to about 50 parts by weight of impact modifier per 100 parts by weight of the polyamide (column 8, lines 24-27). According to Nakajima, impact-modified polyamides include a polyamide continuous phase and a rubbery polymer component which is uniformly distributed throughout the polyamide continuous phase (abstract).

It is maintained that the exemplified compositions disclosed by Jadamus et al meet the requirements of the present claims both with respect to the types of materials added and their contents. The onus is shifted to applicants to establish that the product of the present claims is not the same as or obvious from that set forth by the reference.

The presently claimed “polyolefin”, given its broadest reasonable interpretation, reads on any polymer derived from olefinically unsaturated monomers, such as the styrene-based polymers defining patentees’ aromatic vinyl compound polymers (column 5, lines 8-30). In fact, applicants themselves describe these same materials as suitable polyolefins (page 10, lines 8-12).

Claim Rejections - 35 USC § 103

8. Claims 1 and 3-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. 6,090,459 (Jadamus et al) in view of U.S. 6,608,133 (Kurasawa et al), both described hereinabove.

In Jadamus et al, other suitable molding compositions include polyamides and polyolefins. Furthermore, the polyamides can contain up to 40% by weight of other thermoplastics such as styrene-based copolymers, reading on the presently claimed polyolefin component (column 2, line 58 – column 3, line 4).

It would have been obvious to one having ordinary skill in the art and within the purview of Jadamus et al to employ a polyamide, reading on the presently claimed polyamide, having up to 40% by weight of a styrene-based copolymer, reading on the presently claimed polyolefin, with the reasonable expectation of success. The presently claimed “polyolefin”, given its broadest reasonable interpretation, reads on any polymer derived from olefinically unsaturated monomers, such as the styrene-based copolymers defining patentees’ “other thermoplastic”. In fact, applicants themselves describe these same materials as suitable polyolefins (page 10, lines 8-12).

In the alternative, it would have been obvious to one having ordinary skill in the art to have employed a polyamide/polyolefin blend as the molding composition for the expected

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additive effect. In this regard, attention is directed Kurasawa et al's disclosure of using mixtures of two or more thermoplastic resins as the thermoplastic component in similar-such compositions (column 6, lines 51-52). It is prima facie obvious to combine two materials each of which is taught by the prior art to be useful individually for the same purpose in order to form a composition which is to be used for the very same purpose. The idea of combining them flows logically from their having been individually taught by the reference as suitable polymers for reinforcement with the carbon nanotubes. Accordingly, absent evidence of unusual or unexpected results, no patentability can be seen in the presently claimed subject matter.

9. Claims 1 and 3-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over 6,331,265 (Dupire et al) in view of U.S. 6,608,133 (Kurasawa et al).

Dupire et al disclose reinforced polymers comprising polymers reinforced with 50% or less, preferably less than 5%, of carbon nanotubes. Suitable polymers include polyolefin and polyamide (claim 9). The nanotubes preferably have a diameter from 1-50 nm, more preferably about 10 nm and a length of 1 um or more, more preferably about 10 um (column 4, line 2-9).

In essence, the disclosure of Dupire et al differs from the present claims in not expressly disclosing a polyamide/polyolefin blend containing the carbon nanotubes. It is maintained, however, that it would have been obvious to one having ordinary skill in the art to use a blend of polyamide and polyolefin, for their expected additive effect, as the polymer component to be reinforced with the carbon nanotubes. In this regard, attention is directed Kurasawa et al's disclosure of using mixtures of two or more thermoplastic resins as the thermoplastic resin in similar-such compositions (column 6, lines 51-52). It is prima facie obvious to combine two materials each of which is taught by the prior art to be useful individually for the same purpose

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in order to form a composition which is to be used for the very same purpose. The idea of combining them flows logically from their having been individually taught by the reference as suitable polymers for reinforcement with the carbon nanotubes. Accordingly, absent evidence of unusual or unexpected results, no patentability can be seen in the presently claimed subject matter.

Response to Arguments

10. Applicant's arguments filed February 21, 2006 have been fully considered but they are not persuasive.

It is maintained that the impact-modified polyamides exemplified by Jadamus et al meet the presently "polyamide/polyolefin blend". From Nakajima it is known that impact-modified polyamides include a polyamide continuous phase and an impact modifier component which is uniformly distributed throughout the polyamide continuous phase, the impact modifier comprising about 5 to about 50 parts by weight per 100 parts by weight of polyamide (column 8, lines 24-27). The presently claimed "polyolefin", given its broadest reasonable interpretation, reads on any polymer derived from olefinically unsaturated monomers, such as the impact modifiers defined by Jadamus et al. In fact, applicants' disclose these same polymers as suitable polyolefins at page 10, lines 8-12.

As to Dupire et al, it is maintained that it would have been obvious to one having ordinary skill in the art to have used a polyamide/polyolefin blend (in a specified amount), in lieu of either one polymer alone (in the same total amount), for their additive effect with the reasonable expectation of success. Applicants' argument that the amount of total carbon nanotubes required in the polyamide/polyolefin blend would be the amount needed in the

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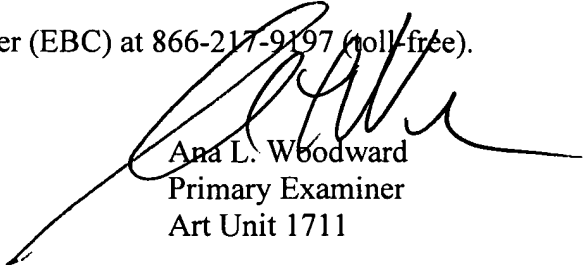
polyamide PLUS the amount needed in the polyolefin is not understood. The rejection is based on the premise that the total amount of polymer matrix *and* total amount of nanotubes used in the composition comprising the polyamide/polyolefin combination would be same as in the composition comprising either polyamide or polyolefin alone. That is, it would have been obvious to use a specified amount of two polymer matrices in lieu of the same amount of either polymer matrix alone. Accordingly, the argument that a lower level of carbon nanotubes is required in the blend is not well taken.

Conclusion

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ana L. Woodward whose telephone number is (571) 272-1082. The examiner can normally be reached on Monday-Friday (8:30-5:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, James J. Seidleck can be reached on (571) 272-1078. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Ana L. Woodward
Primary Examiner
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